

CLAIMS:

1. An image processing method for providing three-dimensional geometric modeling of the spine, using a biplanar image reconstruction, comprising steps of acquisition of a first view (F) of a part of the spine, and a second view (L) of the same part of the spine taken from a different angle around the longitudinal axis of the spine, matching the

5 dimensions of the views (F,L) from two predetermined corresponding landmarks (P1, P2) on each view and deriving three-dimensional coordinates (z, x, y) of corresponding points (P) along the spine.

2. An image processing method as claimed in Claim 1, wherein, for matching the
10 two views, an axial line (FAL, LAL) is drawn on the spine on each view, and the two landmarks (P1, P2) are set on said axial line on each view.

3. An image processing method as claimed in claim 2, wherein the matching of
the dimensions of the two views is performed by a calculating matching coordinates [(x_{F1} ,
15 z_{F1}), (y_{F1}, z_{L1}); (x_{F2}, z_{F2}), (y_{L2}, z_{L2})] for the two corresponding landmarks (P1, P2).

4. An image processing method as claimed in Claim 3, wherein a common
system of coordinates (Z, X, Y) is determined for the two views, from the matched
coordinates of the two corresponding landmarks.

20

5. An image processing method as claimed in one of claims 2 to 4, wherein
spline calculation is performed for providing smoothed axial line (FAC, LAC) on each view.

6. An image processing method as claimed in one of claims 2 to 5, wherein
25 three-dimensional coordinates (z, x, y) of corresponding points along the spine are
determined for points (P) regularly spaced along the axis of coordinates (Z) corresponding to
the longitudinal axis of the spine.

000003/260

7. An image processing method as claimed in one of claims 2 to 6, wherein the common system of coordinates is an orthogonal system, the first view is a frontal view (F), the second view is a lateral view (L) orthogonal to the frontal view, with a common axis (Z) in the direction of the longitudinal axis of the spine, a second axis (X) parallel to the frontal plane of view and the third axis (Y) parallel to the lateral plane of view.
8. An imaging system having acquisition means for acquiring a first and a second view of the spine, having display means to display the two views of the spine, having drawing means to draw axial lines of the spine and to set predetermined corresponding landmarks on each view and having processing means to calculate three-dimensional coordinates of points along the spine according to the method as claimed in one of claims 1 to 7.
9. An imaging system as claimed in Claim 8, wherein the processing means comprise a suitably programmed computer of a workstation or a special purpose processor having circuit means, which are arranged to process image data according to the method as claimed in any of Claims 1 to 7, and wherein the display means display images processed according to said method, further comprising means to store the image data.
10. An X-ray examination apparatus having a system as claimed in one of Claims 8 or 9.
11. A computer program product comprising a set of instructions for carrying out the method as claimed in one of Claims 1 to 7.